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What is Claimed:

1                   1.       An integrated circuit module comprising an interconnect system, the  
2       interconnect system comprising a first connector and a second connector, wherein the first  
3       and second connectors are complementary connectors, the first connector comprising a  
4       first electrical connector and a first optical device, the second connector comprises a  
5       second electrical connector complementary to the first electrical connector and a second  
6       optical device configured in a position complementary to the first optical device, wherein  
7       the first optical device is an optical emitter and the second optical device is an optical  
8       detector.

1                   2.       The integrated circuit module of claim 1 wherein the interconnect  
2       system extends from the exterior of the module.

1                   3.       The integrated circuit module of claim 1 wherein the first and second  
2       electrical connectors each comprise a fastener unit adjacent to an electrically conductive  
3       unit, wherein the fastener unit of the first electrical connector is positioned on an outer  
4       surface of the electrically conductive unit and the fastener unit of the second electrical  
5       connector is positioned on an inner surface of the electrically conductive unit.

1                   4.       The integrated circuit module of claim 1 wherein the interconnect  
2       system further comprises a third and a fourth connectors, wherein the third and fourth  
3       connectors are complementary.

1                   5.       The integrated circuit module of claim 4 wherein the module further  
2       comprises a fifth and a sixth connectors, wherein the fifth and sixth connectors are  
3       complementary.

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1                   6.       An integrated circuit packaging apparatus comprising at least two  
2 integrated circuit modules, the modules connected via an attachment between a first  
3 connector and a second connector, each module comprising at least one first connector  
4 and at least one second connector; the first connector on a module adapted to form an  
5 attachment with the second connector on an adjacent module, the attachment providing a  
6 mechanical, an electrical, and an optical connection between the module and the adjacent  
7 module.

1                   7.       The integrated circuit packaging apparatus of claim 6 wherein the  
2 first connector comprises a first electrically conductive unit, and the second connector  
3 comprises a second electrically conductive unit, wherein the attachment between the first  
4 and second connectors aligns the optical connection between the first and second module  
5 and the adjacent module and forms an electrical connection between the module and the  
6 adjacent module.

1                   8.       The integrated circuit packaging apparatus of claim 6 wherein the  
2 first connector comprises a first optical array, and the second connector comprises a  
3 second optical array, each of the first and second optical arrays comprising photo emitters  
4 and detectors, wherein the attachment between the module and the adjacent module  
5 positions the photo emitters of the first optical array are configured to be in optical  
6 communication with the photo detectors of the second optical array.

1                   9.       The integrated packaging apparatus of claim 8 wherein the  
2 attachment positions the photo emitters of the second optical array are opposite  
3 attachment positions of corresponding ones of the photo detectors of the first optical array.

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1                   10.     The integrated packaging apparatus of claim 9 wherein the  
2     attachment positions the first and second optical arrays to provide a gap between the  
3     photo emitters of the module and the corresponding photo detectors of the adjacent  
4     module.

1                   11.     The integrated packaging apparatus of claim 10 wherein the gap is  
2     between about 0 mm and about 50 mm.

1                   12.     An integrated circuit device comprising a first integrated circuit  
2     module attached to a second integrated circuit module, the first and second integrated  
3     circuit modules attached through a direct attachment comprising an electrical connection,  
4     a mechanical connection, and an optical data transmission connection, the optical data  
5     transmission connection comprising optical emitters and detectors.

1                   13.     The integrated circuit device of claim 12 wherein each of the first and  
2     second modules comprise an optical emitter and an optical detector.

1                   14.     A method of assembling an integrated circuit apparatus comprising  
2     interchangeably attaching at least two integrated circuit modules of claim 1.

1                   15.     The method of assembling of claim 14 further comprising  
2     interchangeably attaching integrated circuit modules to form a two-dimensional array of  
3     interconnected integrated circuit modules.

1                   16.     The method of claim 14 further comprising interchangeably attaching  
2     integrated circuit modules to form a three-dimensional array of interconnected integrated  
3     circuit modules.

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1                   17.    An integrated circuit packaging apparatus comprising a plurality of  
2   interchangeable integrated circuit modules, the modules each comprising means for  
3   electrically connecting in series, and means for transmitting optical signals between  
4   modules, wherein the means for electrically connecting and the means for transmitting  
5   optical signals are adapted to permit the modules to be alternately connected and  
6   disconnected.